

**Remarks:**

The claims pending in this patent application at the time of the outstanding Office Action were claims 1-35, 82-86, and 91-97. By this amendment, Applicant has amended claims 1, 2, 82, and 95 and added new claim 98. No new matter is present. The pending claims are now claims 1-35, 82-86, and 91-98. The independent claims are claims 1, 32 and 82.

The outstanding Office Action rejected all of the pending claims as follows: (1) claims 82-86 were rejected under 35 USC 112 second paragraph for allegedly being indefinite, (2) claims 1-11, 16, 18, 20, 21, 27-32, 34-35, and 94-97 were rejected for allegedly being obvious based on Mulinder, (3) claims 12-15 and 33 were rejected for allegedly being obvious based on Mulinder in view of Bowman-Amuah, (4) claims 82 and 91-93 were rejected for allegedly being obvious based on Mulinder in view of Toffey, (5) claims 17 and 19 were rejected for allegedly being obvious based on Mulinder in view of "Official Notice", and (6) claims 22-26 and 83-86 were rejected for allegedly being obvious based on Mulinder in view of Toffey and "Official Notice".

**I. Claims 82-86 are not indefinite**

Regarding the rejection of claims 82-86 under 35 USC 112, the Office Action asserted that these claims are indefinite because "[i]t is unclear whether claim 82 is a system or method claim." Applicant respectfully submits that the rejection of claims 82-86 is rendered moot by the amendment made herein to claim 82.

**II. Claim 1 is not obvious based on Mulinder:**

Regarding the rejections under 35 USC 103(a), the Office Action asserts that independent claim 1 is obvious based on Mulinder. As interpreted by Applicant, the Office Action provides two rationales for supporting the obviousness rejection based on Mulinder – the first rationale alleging it would be an obvious matter of "design choice" to modify Mulinder to arrive at the invention of claim 1 (see Office Action; p. 4), and the second rationale alleging that claim 1 is rendered obvious by Mulinder as a "matter of law" (see Office Action; p. 26).

Applicant respectfully submits that this obviousness rejection is improper under both rationales and should be withdrawn for the following reasons.

The Office Action admits that Mulinder fails to disclose the "front end layer", "intermediate layer", and "back end layer", as recited by claim 1. (See Office Action; p. 4). However, under the first rationale to support the obviousness rejection based on Mulinder, the Office Action alleges that it would have been "an obvious matter of design choice" to include such layers in Mulinder's system. To provide a basis for justifying this assertion of "design choice", the Office Action alleges that:

Applicant has not disclosed that adding a front end layer, an intermediate layer, or a back end layer is for any particular purpose, and it appears that the invention would perform equally well with one layer containing multiple applications, servers, and memory. (See Office Action; page 4).

First, Applicant respectfully submits that a patent application need not disclose a purpose for an invention for that invention to possess nonobviousness. Second, Applicant respectfully submits that this allegation on page 4 of the Office Action is incorrect. Contrary to the Office Action's quote above, the application discloses a particular purpose – indeed multiple purposes – for the front end layer, intermediate layer, and back end layer. In fact, the specification is replete with examples. For instance, the application states:

According to one aspect of the preferred embodiment of the present invention, the inventors herein have abstracted the system's activity request processing business logic onto an intermediate layer that interfaces front end web servers with backend accounting databases, quote vendors, and trading market interfaces. This design effectively "gathers" the logic together into a single intermediate layer and removes it from the front end and back end layers. Such abstraction greatly improves the system's flexibility to accommodate modifications in the backend of the system (e.g., a new accounting database, a new quote vendor, or a new trading market interface) or modifications in the front end of the system (e.g., modifications to the customer interfaces or the addition of new types of customer interfaces such as an interface to wireless devices such as cell phones or personal digital assistants (PDAs)). Accordingly, the intermediate "layer" or tier of business logic can remain unchanged or largely unchanged when such modifications occur. (See Specification; page 2, line 40 – page 3 line 14).

Thus, Applicant respectfully submits that the Office Action's first basis for supporting the "design choice" obviousness rejection is improper.

Applicant interprets the Office Action as providing a second basis to support the "design choice" allegation on page 26. In response to Applicant's previously filed arguments, the Office Action asserts that:

[I]t is not inventive in terms of patentability to take one or more layers, servers, applications, and data sources which perform one or more tasks and add (or subtract) an additional number of layers, servers, applications, and data sources to perform all or part of the same tasks by allocating the tasks between the various. [sic] The prior art is replete with examples showing why such scaling (both increasing and decreasing the number of servers, data sources, applications, data sources [sic], etc) is desirable. See e.g. Chrabaszcz (U.S. 6,363,497)(See Office Action; p. 26)

To the extent that this passage from the Office Action was intended to rely on Chrabaszcz for evidentiary and factual support as to the "design choice" obviousness rejection of claim 1 on pages 3-4 of the Office Action, Applicant respectfully submits that the Chrabaszcz reference fails to bridge the gap between the invention of claim 1 and Mulinder's admitted failure to disclose claim 1's "front end layer", "intermediate layer" and "back end layer".

Chrabaszcz discloses a system for fault tolerant execution of an application in a server network. The system of Chrabaszcz responds to a failure of a server in the network by checking for applications that normally run on the failed server, and executing those applications on a backup server. (See Chrabaszcz col. 3, line 40 – col. 4, line 20). The Office Action fails to identify where and how Chrabaszcz allegedly discloses an automated brokerage system for supporting financial instrument trading that employs a front end layer, intermediate layer, and a back end layer as recited in claim 1. For this reason alone, Applicant respectfully submits that Chrabaszcz fails to support a valid obviousness rejection of claim 1 based on Mulinder. Moreover, to the extent that Chrabaszcz teaches the use of multiple servers, Chrabaszcz teaches that the backup server should be utilized only when there is a failure on a primary server. In this manner, Chrabaszcz fails to disclose, teach, or suggest the use of "a plurality of intermediate layer servers for simultaneously processing the generated activity requests", as required by claim 1. As noted by the Federal Circuit, a finding of an "obvious

design choice" is "precluded where the claimed structure and the function it performs are different from the prior art." In re Chu, 36 USPQ 2d 1089, 1095 (Fed. Cir. 1995) (citing In re Gal, 25 USPQ2d 1076 (Fed. Cir. 1992)). Thus, claim 1 is not rendered obvious as a matter of design choice based on Chrabaszcz (in combination with Mulinder) because the function of the primary and backup server in Chrabaszcz is wholly different than the function of the "intermediate layer servers" recited in claim 1.

As a second rationale to support the rejection, Applicant further interprets the Office Action as alleging that Mulinder renders claim 1 obvious as a "matter of law" (see Office Action; p. 26). In this regard, the Office Action alleges that "a modification increasing the number of servers (e.g. having two servers perform a task previously performed by one server) is analogous to making functions, structures, or actions separable." The Office Action therefore concludes that Applicant's claimed invention is obvious "as a matter of law" under In re Dulberg, 289 F.2d 522 (CCPA 1961)(See Office Action; p. 26). Applicant disagrees with this characterization of Applicant's invention as merely "making elements separable." Furthermore, the cited precedent is inapplicable in this case.

As a preliminary matter, Applicant notes that the Office always bears the burden of *factually* supporting a prima facie case of obviousness by providing a "clear articulation of the reason(s) why the claimed invention would have been obvious."

The examiner bears the initial burden of **factually supporting** any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness. [...] The key to supporting **any** rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. (MPEP 2142)(emphasis added).

The U.S. Supreme Court has stated that the analysis supporting rejections should be made explicit to facilitate review, and that rejections cannot be sustained by mere conclusory statements. "To facilitate review, this analysis should be made explicit. [R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion

of obviousness" KSR Intern. Co. v. Teleflex, 127 S.Ct. 1727,1741 (U.S. 2007)(citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)).

The Supreme Court set forth the factual analysis that must be followed in any obviousness analysis in Graham v. John Deere, 383 U.S. 1 (1966). The MPEP lists the factual inquiries enunciated by the Supreme Court in Graham:

- (A) Ascertaining the differences between the claimed invention and the prior art;  
and
- (B) Ascertaining the differences between the claimed invention and the prior art;  
and
- (C) Resolving the level of ordinary skill in the pertinent art. (See MPEP 2141)

The MPEP states that "[t]he question of obviousness must be resolved on the basis of these factual determinations" and that "each case is different and must be decided on its own facts." (MPEP 2141) (emphasis added); see also In re Pardo, 684 F.2d 912, 917 (CCPA 1982) (reversing obviousness rejection for failure to follow the three-pronged analysis required by Graham). Based on the foregoing, Applicant respectfully submits that it is inappropriate to reject a claim for obviousness "as a matter of law."

Furthermore, the Dulberg case cited in the Office Action is inapplicable to this invention. In Dulberg, the USPTO rejected claims to a lipstick holder as obvious. The difference between the claimed lipstick holder and the prior art was that the prior art did not allow manual removal of one end (i.e. a cap) of the lipstick holder. The CCPA affirmed the rejection, holding that it would be obvious to make the cap removable. The court stated that making the cap removable "could be done by anyone having the ordinary skills of this art simply by making the fit sufficiently loose to permit the ready manual removal of the cap." Id. at 523. (emphasis added). As such, Dulberg's holding is, on its face, limited to the specific art and facts at issue in that case, namely lipstick holders. Therefore, Applicant respectfully submits that the Dulberg case has no bearing on the obviousness of the subject matter at issue in this application because Applicant's claims do not relate to lipstick holders or removable caps. Applicant again notes that "each case is different and must be decided on its own facts." (MPEP 2141).

Section 2144.04 of the MPEP, which the Office Action cites to support the rejection, itself states that reliance on a previous legal decision as evidence of obviousness is only appropriate "if the facts in a prior legal decision are sufficiently similar to those in an application under examination". Given the extreme differences between lipstick holders and networked computer technology configured to support financial instrument trading, Applicant respectfully submits that the Dulberg case fails to serve as valid evidence of obviousness. Moreover, section 2144.04 of the MPEP further states that the use of case law as factual evidence of obviousness is inappropriate if the limitations in question are critical to operation of the invention. As noted above, Applicant's specification describes various advantages provided by the invention of claim 1. (See, e.g., Specification at page 2, line 40 – page 3 line 14). Thus, because of the improvements to the art provided by the recited multiple layers of claim 1, Applicant further notes that reliance on a legal decision to serve as factual evidence of obvious is inappropriate.

Furthermore, to the extent that the Office Action relies on "Official Notice" to fill the gap between claim 1 and Mulinder<sup>1</sup>, Applicant respectfully submits that the obviousness rejection is improper because reliance on "Official Notice" is not appropriate unless the alleged facts relied upon are "capable of instant and unquestionable demonstration as being well-known."

Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. [...] It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. MPEP 2144.03(A)(emphasis original)(citing In re Ahlert, 424 F.2d 1088, 1091 (CCPA 1970)).

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<sup>1</sup> Applicant interprets the Office Action as essentially taking "Official Notice" that claim 1 is obvious because, beyond the Chrabaszcz reference distinguished above, the Office Action does not cite to any documentary evidence to support its position that it would be obvious to modify Mulinder to arrive at the invention of claim 1.

Applicant respectfully submits that modifying Mulinder to include the front end layer, intermediate layer, and back end layer recited in claim 1 is not "capable of instant and unquestionable demonstration as being well-known." To the contrary, the abstraction of processes onto an intermediate layer is highly technical, and relates to computer engineering, which is an "esoteric technology." See In re Pardo, 684 F.2d 912, 917 (CCPA 1982) (reversing an obviousness rejection and applying a rule that "technical facts in areas of esoteric technology must always be supported by citation to some reference work recognized as standard in the pertinent art" in a computer-related application). As noted in the MPEP, it is inappropriate for an Office Action to take "Official Notice" of "technical facts" in "esoteric" technologies.

For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. MPEP 2144.03(A) (emphasis added) (citing In re Ahlert, 424 F.2d at 1091 (CCPA 1970); In re Grose, 592 F.2d 1161 (CCPA 1979); In re Ende, 480 F.2d 1364 (CCPA 1973)).

Applicant respectfully submits that the use of "Official Notice" in this manner is exactly the kind of vague rationale for an obviousness rejection that the MPEP and Federal Circuit have determined to be inappropriate. Such improper use of "Official Notice" allows a vague and conclusory rejection of the claimed subject matter, in violation of the Supreme Court's guidance in KSR that the "analysis should be made explicit." See KSR, 127 S.Ct. 1741. Applicant hereby respectfully requests that the Examiner produce authority for the unsupported statements in the Office Action or allow the claims. (See MPEP 2144.03(C)).

Rather than producing facts to document claim 1's alleged obviousness, the Office Action merely lists various advantages derived from the use of multiple layers (e.g. "reduce bandwidth bottlenecks," "fast response," and "excellent data management"). (See Office Action; p. 4). Applicant respectfully submits that a mere list of advantages does not provide the necessary "specific factual findings" to support a conclusion of common knowledge. A claim feature can be advantageous without its combination with other claim features being obvious or well-known. The Examiner has provided no evidence that a person having ordinary skill in the art would have known such advantages existed or would be enjoyed if Mulinder was modified as suggested in the Office Action. "The application of hindsight is inappropriate

where the prior art does not suggest that this [claim element] could reasonably be expected to manifest the properties and advantages that were found for this particular [claim element].” Sanofi-Synthelabo v. Apotex, Inc. 550 F.3d 1075, 1088 (Fed. Cir. 2008)(citing Graham, 383 U.S. at 36). It is only through impermissible hindsight, wherein the inventor’s own patent application is used as a roadmap through the prior art, that one can piece together and arrive at the claimed invention from Mulinder (or Mulinder in combination with Chrabaszcz). (See Princeton Biochemicals, Inc. v. Beckman Coulter, Inc., 411 F.3d 1332, 1337 (Fed. Cir. 2005) (Noting that “title 35 prevents evaluation of an invention part by part”, and that such an “improper method would discount the value of combining various existing features or principles in a new way to achieve a new result – often the essence of invention.”)).

For the reasons set forth above, Applicant respectfully submits that the obviousness rejections of independent claim 1 and all claims dependent therefrom are improper and should be withdrawn. For similar reasons, Applicant respectfully submits that the obviousness rejections of independent claims 32 and 82 (and all claims dependent therefrom) are improper. Applicant respectfully submits that the Office Action attempts to reject the claims for obviousness without evaluating the factual inquiries set forth by the Supreme Court in Graham. Instead, the Office Action has rejected Applicant’s claims based on vague and conclusory statements unsupported by documentary evidence, and without reference to specific claim limitations.

### **III. Claim 2 is not obvious based on Mulinder:**

Claim 2 recites, in combination with claims 1, 94 and 95, that “the intermediate layer servers comprise a plurality of dedicated servers, each dedicated server being configured to provide a different set of services in connection with the processing of activity requests.” The Office Action alleges that Mulinder, at paragraph 43, discloses this feature of claim 2. However, Mulinder fails to disclose the use of such dedicated servers. To the extent that the Office Action’s rejection of claim 2 alleges that Mulinder’s “FX Services Provider 3” includes multiple dedicated servers that are configured to provide a different set of services, Applicant respectfully submits that Mulinder fails to disclose that the FX Services Provider 3 should employ multiple servers. While Figure 2 of Mulinder discloses different tasks provided by the



FX Services Provider (e.g., the Exposure Manager 23, Block Trade Manager 25, Trade Aggregator 19, etc.), Mulinder fails to disclose that these tasks should be distributed across separate dedicated servers. Instead, Applicant interprets Mulinder such that these tasks are different software modules executing on the same processor platform. Due to this failure, Applicant respectfully submits that Mulinder fails to render claim 2 obvious.

**III. Claims 3 and 32 are not obvious based on Mulinder:**

Claim 3 recites "wherein the dedicated servers comprise: at least one order server [...] at least one customer account server [...] and at least one quote server." Further to Applicant's comments on claim 2 above, Applicant notes that Mulinder fails to disclose or teach that the different tasks depicted in Figure 2 should be deployed to different dedicated servers. Due to this failure, Applicant respectfully submits that Mulinder fails to render claim 3 obvious. Applicant respectfully submits that independent claim 32 is patentable over Mulinder for similar reasons.

**IV. Claims 82, 91-93 and 98 are not obvious based on Mulinder and Toffey**

The Office Action rejected claims 82 and 91-93 for allegedly being obvious based on Mulinder in view of Toffey. Applicant submits that the deficiencies noted above with respect to independent claim 1 also applies to independent claim 82. The Office Action concedes that "Mulinder et al. does not disclose a first layer and a second layer." (See Office Action; page 18). In an attempt to fill this gap, the Office Action again points to "an obvious matter of design choice" to allege that it would have been obvious to modify Mulinder to include multiple layers. Applicant has already shown why this rejection is improper. Furthermore, Applicant respectfully submits that Toffey also fails to bridge the gap between Mulinder and claim 82 with reference to the allocation of processing tasks between layers. Therefore, Applicant respectfully submits that the obviousness rejection of claim 82, and all claims dependent therefrom, is improper and must be withdrawn. Further still, Applicant respectfully submits that dependent claim 98 is patentable over Mulinder and Toffey for similar reasons as expressed in connection with claims 3 and 32.

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**Conclusion:**

For the foregoing reasons, Applicant respectfully submits that the pending claims are in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below. Favorable action is respectfully requested.

Respectfully submitted,



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